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REGULATION OF A GOVERNMENT FOSTERED MER-CHANT MARINE BY THE AUTOMATIC TEMPERING OF ITS SECURITIES

For many reasons a large increase in the number of merchant ships owned by citizens of the United States and registered from the ports of this country is regarded as extremely urgent and necessary in the development of foreign trade and in the formation of an auxiliary fleet that would be immediately available in time of war. But the methods that have been proposed for accomplishing this result have seemed to be open to serious objections from various sources. It appears that privately owned ships under American registry find it very difficult in normal times to compete successfully to any great extent with those of foreign registry, yet government ownership is strenuously opposed by various interests, and a subsidized merchant marine does not command great popular favor in this country. Let us consider, then, whether there might not be a way of increasing our merchant marine by a form of government assistance which might not be open to any important objection—first briefly reviewing some elementary financial and economic principles.

Two fundamental methods of subsidizing private corporations.

The value of a corporation stock obviously depends chiefly upon the returns expected in the future, including the liquidation of the capital investment. The yield of income per share of stock depends upon the amount of the total fund of earnings available for apportionment among the shareholders, and also upon the number of shares participating in the dividends. Thus the value of the stock depends finally upon both the total fund of earnings to be divided and the number of shares that participate in the Therefore a subsidy may be granted to a corporation either by increasing the total amount of earnings that may be distributed or by diminishing the number of shares that will participate in the total available fund of earnings to be divided. But the subsidy which increases the fund of earnings is very difficult to apply so that its benefits may be shared equally by the general public and the corporations obtaining such favors, while the amount of the subsidy which would be granted by supplying part of the capital required by an enterprise without participating in

the earnings could be easily controlled so that the profits received by those who invest in the enterprise would closely conform at all times to the market requirements for such investments. Then the general public would have the assurance that such a subsidy could not build up a special privilege which any member of the investing public might not enjoy on equal terms if he so desired.

Objection to subsidies which increase earnings.

Assuming that an investment requires that the capital be paid in at par for all of the stock issued, then the market value of such stock would remain at par as long as the expected earnings compared favorably with the expected returns from other investments having similar risks. It appears, however, that under normal conditions the returns that might be expected from any considerable investment in our merchant marine would not be great enough to promote a sale of stock at a price equal to the capital cost of the investment represented. Therefore, in order to make this very desirable and necessary investment sufficiently attractive, it has been proposed to increase the returns by a direct subsidy from the national treasury. Although this practice may have proved a public benefit in some of the countries in which it has found favor, it is open to the objection that it is difficult to administer such a subsidy in a way to avoid the wasting of public funds in unearned private profit, and that if the shipping business were operated under conditions that were not strictly competitive a much larger subsidy might be necessary than should be required. Under such conditions the public would actually be subsidizing a private monopoly operating in restraint of trade.

If the par value of the stock of a shipping corporation represented the actual capital investment not covered by other securities and obligations, then the efficiency of the subsidy to attract the necessary capital would be shown if the market value of the stock remained at about par. Too small a subsidy would not accomplish its purpose in securing an adequate increase in the merchant marine, while too large a subsidy would either increase the number of ships beyond efficient requirements or give to the shipowners unearned profits which could not be shared on equal terms by the general public. If a considerable degree of monopoly existed in the shipping business, a subsidy would act chiefly to increase the profits of the dominant corporations without adequately benefiting the public or even securing the increase in the merchant marine

which the public would be entitled to expect. So without definite provision for competitive investment by the general public in additions to our merchant marine, the large corporations would still retain the advantage which they have now over small competitors, with the result that the general public could not make investments in additions to our merchant marine and so make use of the subsidy on equal terms with the stockholders in the dominant ship-owning corporations. Nevertheless, a subsidy under such conditions might be advisable if there were no better way of securing relief from the present situation.

Subsidy by fortification of securities.

It would be possible to carry out a plan whereby the amount of a subsidy to increase profits could be automatically controlled by the relation between the market value of the stock of the subsidized corporation and an established and fixed cost value of the capital investment in such a way that the objections to a subsidy would be overcome, but the method of providing a subsidy by the fortification of the stock of the corporation would be much simpler and more economical in administration. This method would be carried out by reducing the number of shares that would participate in the fixed quantity of available earnings instead of increasing the amount of earnings to be distributed among a fixed number of shares.

For example: Suppose it would cost \$600,000 to build a steamship, and the conditions were such that the future yearly earnings from the investment might be expected to be \$36,000, affording a 6 per cent return, but that other opportunities were such that an investment of this character would not be attractive unless the expected returns were 9 per cent, or \$54,000. Under these conditions, then, it would take a government subsidy of \$18,000 to make the investment sufficiently attractive. But exactly the same result would be attained if the government furnished \$200,000 of the capital investment required to build the ship but did not participate in any of the earnings, while the public invested \$400,000 and received the whole available earnings of \$36,000, which would then amount to 9 per cent on their investment. This method would also be much cheaper because the \$200,000 would cost the government perhaps only 4 per cent, or \$8,000 a year, whereas the sub-

¹ See "Automatic Regulation of Monopoly by Competitive Investment," AMERICAN ECONOMIC REVIEW, vol. V (June, 1915), p. 303,

sidy necessary to accomplish the same result by increasing profits would cost \$18,000 a year, or $2\frac{1}{4}$ times as much.

This fortification of the securities of the corporation might be accomplished by the government paying \$600,000 for the ship and then issuing 600 shares of stock for popular subscription at \$666.66 a share, which would then cost the public \$400,000, and yield a 9 per cent return; or the stock fortification might be carried out by having the ship built by a private corporation for \$600,000 under an agreement that the government would buy 200 shares from the stockholders at \$200,000 which would not participate in any earnings, and would thus leave 400 shares, representing an investment of \$400,000 to participate in the \$36,000 earnings available, which would then afford the stockholders a return of 9 per cent on their investment as in the first case.

Automatic control of subsidy requirements.

As thus far described, the methods of subsidizing by the fortification of stock contain most of the defects that were noted in regard to subsidy by increasing earnings. The investment would be speculative and not fully competitive because the general public could not handle it on equal terms with a large and dominant corporation, and even if the stock were sold to the highest bidder it would be impossible to discount the future so that there would be any assurance that the value of the investment would remain very long at the amount that was paid for it. If the securities were fortified by the whole capital stock being sold to the general public there would seem to be no way of remedying these defects; but if part of the stock were bought by the government at the cost of the capital investment, then the amount of government assistance necessary to fortify the stock sufficiently to make it attractive to the investing public could be automatically determined, not only for the market requirements at the time the investment was made but it could also be adjusted at all times to meet any changes in conditions that might take place in the future. This result would be secured if a private corporation issued stock at par to provide the capital necessary to build and operate a shipping line under a charter which provided that the government would purchase at any time also at par whatever amounts of stock were offered by the stockholders, and furthermore that the government would reissue at par on demand whatever amounts of stock were applied for by the public, it being provided that the stock

should not participate in any earnings during the time it was in the hands of the government—the principle involved being very similar to that underlying the national banking system. if the expected earnings from a \$600,000 ship were only \$36,000, while an investment of that character with a probable yield of less than 9 per cent would not be attractive to the public, the ship could be built for the \$600,000, and 200 shares could be redeemed by the government, leaving only 400 shares to participate in the \$36,000 earnings, which would then allow a return of 9 per cent on the investment. And then if the quantity of stock to be redeemed were left to the choice of the investors, the necessary fortification of the stock would be accomplished automatically to meet exactly the requirements of the market. For, if the market required a probable return of only 8 per cent, then when 150 of the 600 shares had been redeemed, leaving 450 shares earning 8 per cent, a stockholder would find it more profitable to retain his investment in the ship and participate in the \$36,000 earnings divided among 450 shares than to cash his stock at the federal treasury and invest his capital in some other enterprise. On the other hand, if the market offered 10 per cent on such investments, the stockholders could cash in their stock at the federal treasury until only 360 shares were left to participate in the \$36,000 probable earnings and so receive the required return on their remaining investment in the ship.

Furthermore, if the government also reissued the stock, whenever applied for, at the same price per share which it paid, and these conditions of redemption and reissue on demand were continued indefinitely, the necessary requirements for the fortification of the stock by the government would be automatically met, not only at the beginning of the enterprise, but also at any time in the future, since all changes in earnings or market conditions could be immediately discounted by applying for the redemption or reissue of stock by the government until the number of shares remaining to participate in the available earnings would yield a profit corresponding to market requirements. Accordingly, if the increase in the American merchant marine became so great that the earnings of our \$600,000 ship fell off to only \$31,500 a year, those stockholders who could use their capital to better advantage in other ways could get 50 shares redeemed by the government, leaving only 350 shares to participate in the reduced earnings, which would then again afford a 9 per cent return on the reduced investment held by the stockholders. On the other hand, if the earnings increased to \$40,500 a year, the public could apply to the government for a reissue of 50 shares at par, which would increase their number to 450, and thus dilute the stock so that the \$40,500 would still provide a return of 9 per cent on the larger investment; furthermore, if the certainty of receiving a definite income increased the confidence of the public so that a yield of only 8 per cent on their investment was acceptable, then the dilution of the stock by the reissue of 50 shares would still allow the lower acceptable return of 8 per cent on the increased number of shares to be paid out of the original \$36,000 earnings.

Saving in subsidy requirements by the automatic fortification of stock.

In the operation of the method of subsidizing our merchant marine by the automatic fortification and dilution of securities it is apparent that, whatever might be the earnings of the enterprise, the yield of the investment of the stockholders would always conform closely to the requirements of the investment market. For, although a considerable fluctuation in earnings might occur from year to year, a properly averaged dividend fund would equalize the yearly income on the shares, and the accumulated surplus could be added to present value so that the profits which should be actually credited to the stock each year could be closely approximated. And, furthermore, instead of the value of the stock rising and falling with the earnings, which are subject not only to temporary fluctuations but to large increases and decreases which may be permanent, these permanent variations would be taken care of by the fortification and dilution of the stock so that its share value could not at any time become greatly altered. Then, since the value of an investment in such stock and also its future yield of income would be stable and uniform, the character of such an investment would approach that of bonds of good security; and, therefore, since the yield required on such securities is not as great as that demanded on securities whose value is speculative and liable to considerable reduction, this method of fortification and dilution of stock would result in another large saving to the government in the subsidy requirements. So the necessary assistance to a merchant marine might in this way be given at little cost or even at a positive profit to the government. For, not only would the interest on the money required to fortify the stock be less than the annuity which would be required as a subsidy to increase earnings, but the money required to fortify the stock would be less on account of the greater certainty of the return on the investment. For the \$600,000 ship in our example, when earning a net profit of only \$36,000, a direct subsidy of \$18,000 would be necessary to make up the deficit in the required income, if the market demanded 9 per cent of the stock investment. This subsidy, however, would cost the government only \$8,000, if it could borrow at 4 per cent the \$200,000 necessary to fortify the stock; and, furthermore, this cost would be reduced to zero if the added security of this practically guaranteed investment were sufficient to induce the public to accept a 6 per cent return on it instead of 9 per cent. In this case, although a temporary fortification of the stock to the extent of \$200,000 might be necessarv, the 200 shares bought by the government would be finally reissued at par to the public on application.

Now suppose, finally, that foreign trade became so active that the earnings from the \$600,000 ship were increased from \$36,000 to \$42,000 a year. Then if the extra earnings were prorated among the stockholders the stock would lose its strict investment nature and take on a speculative character. Its value might rise above par, but yet no one paying more than par for a share would have any assurance that he could at any time in the future dispose of his investment for as much as he paid for it. Those who happened to hold the stock at the time of its rise above par would receive gratuitous benefits at the expense, later on perhaps, of the general public who might wish to purchase the stock on an investment basis. Under such conditions, then, the interest of the general public would be best promoted if the government were to continue to issue stock at par to all who applied for it, even though the capital investment of \$600,000 in the ship were exceeded. Then if the market required a 6 per cent return on investment, and the earnings were \$42,000, the number of shares participating in the earnings would be increased from 600 to 700, so that a return of 6 per cent would be provided on the 700 shares. The result would be that the old shareholders as well as the new would get an acceptable return on their capital, while the government would have the use without interest of the \$100,000 that would be paid into its treasury, but this fund would be subject to call whenever the shareholders became dissatisfied with the income received from their investment. Such a fund could be used

in part to fortify the stock of other desirable enterprises, sometimes perhaps in lieu of an undesirable protective tariff. similar manner such funds could be derived from other enterprises organized perhaps under protective tariffs found to be desirable by a non-partisan tariff board, or from closely coöperative industrial organizations in large units which it might be desirable to create in the interest of domestic business and foreign commerce, or it would afford an unobjectionable substitute for government ownership of the railroads if no other regulative methods can be as satisfactorily applied. The cooperation of the federal government with business enterprises along such lines might provide it with the use of large funds that could be employed for various desirable purposes in the assistance of commerce and trade, and at the same time there would be no objection under these conditions to allowing business to be conducted as a monopoly if necessary, or in any manner in which it could most effectively hold its own in competition with the dominant business organizations that have been built up under government assistance in foreign countries. On the other hand, if a reduction in transportation charges or prices to American consumers were found to be more desirable than a greater accumulation of funds for the use of the government without interest, such a reduction in charges or prices could be made arbitrarily by the Federal Trade Commission without affecting the profits of the stockholders. For, if in our example the freight charges were arbitrarily reduced so that the earnings remained at \$36,000 instead of rising to a possible \$42,000, then, under a requirement of 6 per cent return, there would be no application for more shares at par than the original 600, since the participation of a greater number of shares would then reduce the return on each one to less than 6 per cent. This would allow a control of freight charges and prices to conform to foreign trade conditions without interfering with the incomes of the American investors in these protected organizations, and also without risking a possible restraint of trade which could in any way injure the general public.

Credit not impaired by diluting stock.

The credit of an organization controlled by the automatic fortification and dilution of securities would not be impaired by the dilution of its stock by the purchase of shares from the government in excess of the actual cost of the investment, because every share of stock issued would be represented either by corporate assets of actual physical cash value or by deposits in the federal treasury that could be taken out at any time that a stock-holder preferred cash to the expected income on his investment. This condition obviously has nothing in common with the dilution of securities resulting from gratuitous dividends of stock whose value is based entirely on expected earnings and bears practically, no relation to possible liquidating values or to the capital cost of the investment.

Desirable provisions in federal charters.

In return for the assistance and protection of the government, federal charters of shipping organizations should provide for mail service to the government at normal rates, for transport service and whatever auxiliary service the government might at any time require. The capital advanced by the government to fortify the stock should stand against the property of the corporation as a first mortgage which would have to be satisfied before the property could be sold, before the shipping could be taken from the control of the government, or before its registry could be cancelled. A sinking fund against depreciation should be set up. which would keep the property at a value sufficient to refund the amount advanced by the government and to finally liquidate the stockholders' investment at par. On the other hand, any appreciation in the value of the property of the corporation should be counted as an addition to the total fund of earnings which would be available for the sinking fund and for dividends to stockholders.

In order that the public might be able to estimate the probable return from the corporation securities, full publicity should be required at all times in regard to all the details of the business which would affect the earnings; and in order that the public should be equally benefited by the government assistance, the shipping business should be conducted as that of a common carrier whose services would be available to all the citizens of the nation on equal terms.

Provision for economy and efficiency in production.

There still remains to be noted an extremely important feature that should be most carefully provided for in all plans for the cooperation of government with business. Industrial corporations

organized on the plan so far described would still contain the vital defect usually attributed to government operation of industries. Since their income would not be greatly affected by changes in the cost of operation, there would be no direct financial incentive for the stockholders to provide for an efficient and economical business management. Of course the rewards for economy and efficiency should naturally go to the managers and workmen in a business, who are actually responsible for such results; but, until an adequate method is established for distributing such profits to those who earn them, an acute financial interest in economy and efficiency must remain with the stockholders, who control the management of the organization. An increase in the earnings of a corporation which is due to restraint of trade, to the destruction of normal competition, or to privileges granted through the corruption or deception of public officials is usually contrary to the interest of the consuming public; but an increase in earnings due to a reduction in the operating costs of production is not opposed to the public interest when such a reduction in cost is finally followed, as it would be under competitive conditions, by a reduction in the price at which the public may obtain the goods or services of the corporation. Gains in economy and efficiency which are in the public interest will therefore appear as a reduction in the unit costs of operation in the accounts of the corporation. So the interest of the stockholders in economy and efficiency in production would not be interfered with, if the gains in earnings resulting in improvements in operation were distributed among the stockholders who were in control when such gains were made, as an extra before the prorated participation in the remaining earnings by all the stockholders. The gain in economy and efficiency might then be even greater than in unregulated industries, because the managers would no longer have their attention drawn away from efficiency in production by being able to profit by restraint of trade or by the manipulation of securities in the market.

To show how the segregation of the gain due to economy and efficiency could be carried out in practice, suppose in our example that the accounts showed that because of skilful management the unit costs of the operation of the ship per ton mile had been reduced enough to save \$4,000 during the year on the business done, but that the yearly earnings had increased from \$36,000 to \$49,000. Then the \$4,000 could first be distributed among the

400 shares which were outstanding before the first of the year, leaving \$45,000 to be then distributed among all the shares that had been carried during the year. Assuming a required return of 9 per cent, the \$45,000 left would then satisfy an investment in 500 shares. So without falling short of acceptable returns the stock could have been diluted by the purchase of 100 shares from the federal treasury, which would then have reduced by \$100,000 the necessary fortification of the stock by the government. Whether such a quantity of reissued stock were actually purchased and carried throughout the year or not would of course depend upon the ability of the public to judge from the indications of the business at the beginning of the year that the \$9,000 increase in earnings would probably be realized.

On the other hand, suppose that on account of careless management the cost of operation had increased \$4,000 instead of decreasing, and that the yearly earnings accordingly were \$41,000 instead of \$49,000. Then the 400 shares outstanding at the beginning of the year should be charged with the \$4,000 loss before computing the amount of earnings to be prorated equally among all the shares. This credit would then build the dividend fund up to \$45,000 to be divided equally among all the shares carried throughout the year, as before. The result would then be that the stockholders who allowed the increase in operating costs would get only 8 per cent on their 400 shares, while those who purchased the 100 shares reissued by the government would receive 9 per cent on their investment.

Since the saving for one year would probably provide too small a reward to the stockholders who would be responsible for economical and efficient management, the gains and losses in the cost of operation should be credited and debited for a suitable term of years to the stock outstanding at the time these gains or losses were made. The principle involved is the same as that by which the length of time during which a patent right is allowed to run is determined.

Advantage of building a merchant marine by automatic fortification of securities.

The foregoing description shows how a merchant marine could be built up by methods following the lead of economic and business principles without resorting to public ownership or arbitrary regulation, or interfering with the methods of conducting business, and yet which would allow the necessary government assistance

without the risk that such benefits might not be shared equally by all the public. Government ownership and operation of industries is not generally favored because, as at present administered, it has seldom proved satisfactory, either in regard to service or in regard to economy and efficiency in operation. Poor service may arise from the indifference of officials in control, or it may be due to the great difficulty which governments often have in getting the funds to provide necessary equipment and extensions when needed. Economy and efficiency in government operation is often lacking because it is usually not very closely related to the success of those in control in attaining their political ambitions. Under the automatic method of regulation, however, the opportunity for investment depends upon rendering service that is satisfactory to the public. The necessary funds for extensions and improvements would be assured because the investing public would know that when the service was demanded by the consumers an acceptable return would be forthcoming, and that their personal investment could be liquidated when desired.

Arbitrary public regulation has also been suggested as a means for adjusting the relations between the ship-owning corporations and the public. But it has been said that the slowing up of industrial operations before the European war was largely due to ill-advised and repressive regulation, and although arbitrary regulation at its best might allow an acceptable return on an investment for the time being, it gives no assurance as to what return would be allowed in the future, and also no distinction can be made between extra profits resulting from unfair or unequal advantages, and extra earnings due to unusual efficiency in management and operation. The result is a perpetual contest between the corporations and the regulating authorities involving great expense and inefficiency on both sides. But the automatic method of regulation by fortification and dilution of securities would accomplish all the results sought by arbitrary regulation in a much more certain and effective manner at a nominal expense, and without any chance, either for crippling the corporations by irresponsible interference with business, or for stealing from the public by corrupting or misleading public officials.

In the management of the shipping business, conferences and pools may be necessary to stabilize charges, provide economical and efficient routing, and to equalize the profits among the different lines. Unless all shipowners were allowed to participate in the advantages of these methods on equal terms such coöperation

might constitute a restraint in trade, but the extra profits due to such restraint in trade would not appear as a reduction in the unit costs of operation, and so under the method of automatic fortification of stock would be added to the earnings that could be shared by the investing public by the purchase of additional shares reissued at par by the government. In this way the cost of fortifying the securities of the corporation would be reduced, and so the public would gain by reduced taxation whatever might be lost by excessive transportation charges—in case this burden did not fall on the shippers or consumers of other countries—and, besides, the transportation charges could under this method be arbitrarily reduced by the Federal Trade Commission without interfering with the profits of the stockholders.

Probably the most serious objection that could possibly be urged against this method of regulation would be that the government commission would have to audit the accounts of the corporation to determine that no stock was sold below par and no funds misappropriated, but the work involved would not be as great as that handled by commissions having control of railroads and public service corporations because no exact valuation of property as a basis for rate-fixing and no estimate of probable earnings would be required.

In conclusion it may be repeated that without public ownership, lease or promotion, or arbitrary regulation, uncertainty of unassisted and unprotected private investment a merchant marine could be built up, and the exact amount of government assistance that would be required at any time could be provided by the fortification and dilution of the stock of the shipowning corporations on demand of the stockholders and the investing public; and, moreover, there would by this method be no risk of creating any special privilege that might not be enjoyed by every citizen of the country on equal terms. At the same time, these results could be accomplished in this manner at a considerably less cost than would be required by direct subsidies or lease of government-owned ships to private corporations or sale of stock to the public at less than cost, and without interfering with the private management of the shipping business or weakening the necessary incentive toward securing the greatest possible economy and efficiency in all the operations of the industry. And, finally, investments in a merchant marine built up along these lines would be taken from the realm of speculation where each business unit is trying to destroy competing business and endeavoring to obtain advantages which can not be shared on equal terms by other business or the general public, and would be brought into the field of stable securities where capital could be invested in sound industrial developments with the assurance that as long as the business was managed efficiently the yield of the invested capital would hold up to the average requirements of the investment market, and that if more attractive opportunities for investment should appear, the original capital could then be at once withdrawn.

Although there appears to be a marked reaction from the disposition to break up large business combinations by prosecution under the Sherman act, it seems to be generally conceded that, however serious may be the faults of the government control of industry, the country will not return to its former condition of unrestrained combination and speculation. But it is vital to the welfare of the people that close inclusive organizations of industry be not only allowed but encouraged in order to meet the competition that will be forthcoming from the more or less imperialistic industrial organizations that have been developed and will in the future in a much more effective degree be established in the European nations and in Japan and other countries. The test of our democratic institutions will then lie in our ability to provide such organizations without either building up great private monopolies which are subversive of the welfare of the people or of establishing an unwieldy and irresponsible system of intimate management of private business by political authorities. To this end it is suggested that our cherished democratic institutions may be preserved and strengthened and our industrial organizations may be enlarged and coördinated for their highest possible efficiency by applying the fundamental principles of economics and finance in such a way that the unworthy features of private monopoly may be absolutely eliminated by a control that is so automatic in its operation that the governmental functions are exercised only to execute the dictates of the investment market expressed in positive and definite terms that allow no exercise of arbitrary judgment in their interpretation. May it not be that the economic engineering of the future will largely consist in the development and application of such methods?—and so, as a possible step in this direction, the plan of automatic control by government fortification and dilution of securities is suggested for discussion and consideration.

FREDERICK KELLOGG BLUE.